ANALYSIS OF THE PSRO PERFORMANCE EVALUATION QUESTIONNAIRE

C. Mitchell Dayton and Robert W. Lissitz
University of Maryland

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FOREWORD

This paper explores variations in PSRO organizational structure, operational behavior, and associated impact as reported in a comprehensive questionnaire completed in 1981 by HSQB project officers for 186 PSROs across the United States. Two sets of analyses are reported. The first set deals with the development, through factor analysis, of a series of index numbers, or factors, which represent meaningful aspects of the areas assessed by the questionnaire. Thirteen such factors -- in effect a parsimonious re-arrangement of some eighty items in the original instrument -- were evolved; they are:

1. Cost
2. Quality methods
3. Quality outcomes
4. Data use
5. Data quality
6. Data communication
7. Focusing
8. Audit findings
9. Regular active monitoring
10. Active and tough review
11. Review monitoring
12. State involvement
13. Review initiatives (other than focusing)

The second set of analyses relates these factors to objective measures of PSRO impact. Two such measures were identified; they are (a) the savings in days of care, involving Federal beneficiaries, associated with specific PSRO objectives and (b) the savings in total Medicare days of care. The first of these measures was found to be significantly and positively associated with eight of the thirteen factors, implying that greater levels of PSRO activism with respect to those factors tend to be associated with greater objective-specific impact. Four factors showed no significant impact. One factor, Cost, showed a significant negative impact, implying that higher levels of unit cost produce greater impact on PSRO objectives measured by days of care. No significant association was found between the thirteen factors and the second impact measure, change in total days of care.

The significance of these findings lies in the disclosure that organizational and operational factors apparently have an impact when related to specific PSRO objectives but are of no significance when the criterion measure is total days of care. A second, equally important disclosure is that higher unit costs tend to be associated with greater savings in objective-specific days of care. Other relevant findings include confirmation of the importance, reported in previous years, of local and regional variables in predicting PSRO performance.

Following these analyses, the authors report a separate, albeit related study in which they explore the responses to a second PSRO questionnaire on focused review, which was sponsored by the Office of Research. None of the indices chosen to represent the use of focused review was found to be significant with respect to objective-specific days of care, total days of care, or cost.

In presenting these findings, the authors have assumed a prior familiarity with the two questionnaires on which the study is based. A summary of the questionnaire items is contained in an Appendix to this report. Readers interested in further detail may wish to contact the Health Standards and Quality Bureau (HSQB) or the Office of Research for more extensive documentation and copies of the forms. Thanks are due to the two authors for their diligence and professionalism in pursuing this effort, and to our Project Officer, Gerald Adler, for his guidance, counsel, and understanding throughout. Other significant inputs were provided by Ms. Bonnie Owen.

Leonard Greenberg
Mandex, Inc.

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C. Mitchell Dayton & Robert W. Lissitz
University of Maryland

The data used for this study were collected in 1981 from project officers for 186 PSROs across the United States. The questionnaire was developed by HSQB staff and consisted of three main sections: Organization and Program Management, Performance of Review Operations and Impact/Potential Impact. In addition, there were a few bonus items that appeared as a fourth section of the questionnaire. Most of the items were dichotomously scored ("met" or "not met") with an appropriate weight assigned to each separate response. The weights were subjectively predetermined by HSQB.

The questionnaire included eighty separate items, with weights ranging from as low as 5 to as high as 375. The purpose of the analysis reported in this document was to create and interpret index numbers, or factors, which represent meaningful aspects of the areas assessed by the questionnaire and to suggest a possible alternative set of weights. These indices could then provide input to additional analyses such as the evaluation of the impact of PSRO review structure and operations on various measures of utilization.

The development and subsequent analysis of these indices followed a series of logical and statistical steps, summarized below.

(1) The first task was a logical analysis and clustering of the items in the questionnaire into subgroups of items which would provide a meaningful basis for a series of factor analyses. This process was conducted by people who are intimately familiar with the instrument and with the operation of PSROs. The participants were: Bonnie Owen, Leonard Greenberg, and Gerald Adler, in

addition to the authors of this report. The clustering procedures, essentially judgmental in nature, arrived at the following 7 groups of items:

Cluster	Topics Dealt With	Corresponding Questionnaire Item Numbers[1]
1	Cost Issues	IC1 to IC3
2	Quality Issues	IIC1 to IIC8, IIIC, IVB
3	Data/Profile Analysis	IID1 to IID4, IIE1 to IIE10
4	Focused Review	IIB1(a) to IIB1(d), IIA6
5	Organization	IA1 to IA8, IB1 to IB6
6	Operational Style	ID1 to ID3, IIA1 to IIA8, IIB1(e) to IIB1(g), IIB2(a) to IIB2(f), IIE7 to IIE9, IIIA(1979), IIIA(1980)
7	Additional Review	IVA1 to IVA6

(2) The second task involved performing a principal components analysis of each of the 7 clusters of items. This was done to assist in determining the appropriate number of separate indices, or factors, to extract from each cluster and to determine if any of the items were inappropriate for inclusion (e.g., if there were items with very low communalities or sets of items which were collinear).

(3) The third task was a series of iterative principal factor analyses (minimum residual, or MINRES, factor analyses) in order to estimate the proportion of variance accounted for within each cluster and to obtain an initial set of weights (i.e., factor loadings) for the index numbers. Careful analysis of these results, and those from Step (2), suggested a series of revisions which consisted of such changes as dropping items from some clusters, moving some items to new clusters, and changing the numbers of factors selected for extraction from some clusters. As a result, a total

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[1] Includes all questionnaire items on the rating form, except for Item IIIB which measures the PSRO's impact on days of care corresponding to specific objectives (IIIB1) and on total days of care (IIIB2).

of 13 factors was defined; these are related to the original 7 clusters of items as follows:

Original Cluster		Factor(s) Suggested by Data[1]	
1	Cost Issues	1	Cost
2	Quality Issues	2	Quality Methods
		3	Quality Outcomes
3	Data/Profile Analysis	4	Data Use
		5	Data Quality
		6	Data Communication
4	Focused Review	7	Focusing
5	Organization	8	Audit Findings
		9	Regular Active Monitoring
6	Operational Style	10	Active and Tough Review
		11	Review Monitoring
		12	State Involvement
7	Additional Review	13	Review Initiatives

(4) The fourth task was a set of final factor analyses and computations of factor scores which could serve as the actual index numbers for the various PSRO sites. Below are the results from 8 separate factor analyses (8 rather than 7 since Cluster No. 2, Quality, had been divided into Quality Methods and Quality Outcomes prior to these final analyses). The results are presented in the following order: (a) correlation matrix among the questionnaire items within a cluster; (b) eigenvalues which yield the amount and percent of variance accounted for by each successive factor; (c) varimax-rotated factor loadings of each item on each factor; and (d) coefficients for each item within a cluster that are used to calculate the factor scores.

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[1] All factors have the following directionality: the greater the factor score, the greater the weight awarded in the original questionnaire. Thus, for all items except Cost, higher factor scores correspond to greater levels of PSRO involvement; in the case of Cost, higher factor scores correspond to lower unit costs.

1. COST

(a) Correlation Coefficients

Items	IC2	IC3
IC2	1.00000	
IC3	.52745	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	1.52745	76.4	76.4
2	.47255	23.6	100.0

(c) Factor Matrix Using Principal Factor with Iterations

	Factor Loadings
IC2	.72559
IC3	.72559

(d) Factor Score Coefficients

	Factor 1 (Cost)
IC2	.47503
IC3	.47503

2. QUALITY METHODS

(a) Correlation Coefficients

	IIC1	IIC2	IIC4	IIC5	IIC6	IIC8
IIC1	1.00000					
IIC2	.48457	1.00000				
IIC4	.28445	.36263	1.00000			
IIC5	.40415	.37754	.31252	1.00000		
IIC6	.30723	.46066	.45104	.33975	1.00000	
IIC8	.25704	.46850	.15456	.36477	.33975	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	2.80689	46.8	46.8
2	.88901	14.8	61.6
3	.75628	12.6	74.2
4	.64368	10.7	84.9
5	.49838	8.3	93.2
6	.40576	6.8	100.0

(c) Factor Matrix Using Principal Factor with Iterations

	Factor Loadings
IIC1	.58096
IIC2	.75551
IIC4	.51209
IIC5	.58794
IIC6	.63328
IIC8	.52787

(d) Factor Score Coefficients

	Factor 1 (Quality Methods)
IIC1	.17086
IIC2	.37649
IIC4	.13816
IIC5	.20719
IIC6	.22958
IIC8	.13264

3. QUALITY OUTCOMES

(a) Correlation Coefficients

	IIC3	IIC7	IIIC	IVB
IIC3	1.00000			
IIC7	.27744	1.00000		
IIIC	.34538	.31898	1.00000	
IVB	.12249	.18252	.29810	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	1.78738	44.7	44.7
2	.89198	22.3	67.0
3	.72339	18.1	85.1
4	.59724	14.9	100.0

(c) Factor Matrix Using Principal Factor with Iterations

	Factor Loadings
IIC3	.48516
IIC7	.49023
IIIC	.70840
IVB	.36836

(d) Factor Score Coefficients

	Factor 1 (Quality Outcomes)
IIC3	.22460
IIC7	.23828
IIIC	.51164
IVB	.14484

4. DATA/PROFILE ANALYSIS

(a) Correlation Coefficients

	IID1	IID2	IID3	IID4	IIE1	IIE2
IID1	1.00000					
IID2	.18026	1.00000				
IID3	.06361	.24461	1.00000			
IID4	.18834	.27569	.33922	1.00000		
IIE1	.01790	.32976	.25709	.24153	1.00000	
IIE2	.12897	.24078	.32144	.49993	.14159	1.00000
IIE3	.30551	.18026	.24396	.22713	.20638	.30773
IIE4	.22131	.13226	.27167	.21267	.02471	.20062
IIE5	.24374	.21120	.20089	.38132	.18277	.35183
IIE6	.19421	.25694	.16531	.29739	.10345	.25485
IIE7	.13390	.11123	.11112	.17606	.12573	.30478
IIE8	.17569	.16111	.09446	.29545	.22189	.29633
IIE9	.29521	.16029	.15873	.25371	-.00063	.31897
IIE10	.25687	.16029	.22644	.36295	.29422	.38608

	IIE3	IIE4	IIE5	IIE6	IIE7	IIE8
IIE3	1.00000					
IIE4	.18616	1.00000				
IIE5	.60390	.18141	1.00000			
IIE6	.30559	.20593	.34468	1.00000		
IIE7	.31350	.06426	.22737	.32410	1.00000	
IIE8	.47995	.11402	.30502	.43349	.46746	1.00000
IIE9	.29521	.20258	.28716	.60063	.21420	.39521
IIE10	.52528	.20258	.58296	.39155	.27039	.39521

	IIE9	IIE10
IIE9	1.00000	
IIE10	.31618	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	4.47890	32.0	32.0
2	1.40460	10.0	42.0
3	1.18736	8.5	50.5
4	1.06017	7.6	58.1
5	.95987	6.9	64.9
6	.82382	5.9	70.8
7	.78803	5.6	76.4
8	.65091	4.6	81.1
9	.63133	4.5	85.6
10	.52743	3.8	89.4
11	.50157	3.6	93.0
12	.39257	2.8	95.8
13	.31642	2.3	98.0
14	.27701	2.0	100.0

(c) Varimax Rotated Factor Matrix

	Factor Loadings		
	Factor 1 (Data Use)	Factor 2 (Data Quality)	Factor 3 (Data Communication)
IID1	.24423	.11725	.25261
IID2	.10534	.42811	.12808
IID3	.08790	.55740	.06128
IID4	.18436	.61607	.21742
IIE1	.22560	.38609	-.07756
IIE2	.24500	.50496	.25565
IIE3	.77312	.17235	.16965
IIE4	.09099	.28074	.19970
IIE5	.62482	.30088	.17014
IIE6	.25019	.18956	.66865
IIE7	.34644	.11327	.28254
IIE8	.47707	.13296	.40888
IIE9	.16238	.12583	.77792
IIE10	.61063	.32541	.22067

(d) Factor Score Coefficients

	Factor 1	Factor 2	Factor 3
IID1	.01559	.00290	.04673
IID2	-.03382	.18008	-.01258
IID3	-.09282	.29695	-.05239
IID4	-.06087	.34098	.01112
IIE1	.02416	.15312	-.08507
IIE2	-.02762	.20960	.02591
IIE3	.52608	-.11275	-.10273
IIE4	-.03800	.08668	.04223
IIE5	.21132	.04185	-.06504
IIE6	-.02888	-.01341	.32807
IIE7	.07436	-.02822	.06648
IIE8	.12904	-.06254	.10164
IIE9	-.13461	-.08048	.56790
IIE10	.24964	.05914	-.04930

5. FOCUSED REVIEW

(a) Correlation Coefficients

	IIB1A	IIB1B	IIB1C	IIB1D	IIA6
IIB1A	1.00000				
IIB1B	.67020	1.00000			
IIB1C	.57275	.55281	1.00000		
IIB1D	.35764	.37487	.33528	1.00000	
IIA6	.46412	.44746	.35846	.33988	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	2.82003	56.4	56.4
2	.74647	14.9	71.3
3	.64776	13.0	84.3
4	.45814	9.2	93.4
5	.32761	6.6	100.0

(c) Factor Matrix Using Principal Factor With Iterations

	Factor Loadings
IIB1A	.81816
IIB1B	.80403
IIB1C	.68285
IIB1D	.48255
IIA6	.56991

(d) Factor Score Coefficients

	Factor 1 (Focusing)
IIB1A	.37501
IIB1B	.34501
IIB1C	.19232
IIB1D	.10851
IIA6	.13566

6. ORGANIZATION

(a) Correlation Coefficients

	IA1	IA2	IA3	IA4	IA5	IA6
IA1	1.00000					
IA2	.18322	1.00000				
IA3	.09732	.42320	1.00000			
IA4	-.05315	.14883	.42947	1.00000		
IA5	-.03871	.21818	.44357	.59922	1.00000	
IA6	.05219	.14010	.17805	.39804	.44750	1.00000
IA7	.06906	.02916	.08935	.07497	.04158	.11130
IA8	-.03871	.21818	.28368	.47022	.48333	.44750
IB1	-.05315	.14883	.07018	.51688	.34122	.39804
IB2	-.03871	-.02338	.12379	.08323	.13889	.19978
IB3	.03354	-.06164	.04935	-.00408	-.01005	-.01445
IB4	.01600	-.04319	-.06670	.36699	.13937	.20047
IB5	.15125	.27523	.16543	.27707	-.02707	.26279
IB6A	.09610	.05804	.02255	-.04875	-.02564	-.29677
IB6B	.06950	.04197	-.02583	.00904	-.03780	-.15972
IB6C	.05299	-.00706	-.03848	.00843	-.05462	-.07857
IB6D	-.09642	-.08689	-.10891	-.06812	-.12389	-.11944

	IA7	IA8	IB1	IB2	IB3	IB4
IA7	1.00000					
IA8	.18478	1.00000				
IB1	.23587	.34122	1.00000			
IB2	.04158	-.03333	.08323	1.00000		
IB3	.21753	-.01005	-.06239	.06781	1.00000	
IB4	.02111	.13937	.36699	.23985	.01929	1.00000
IB5	.26633	.18270	.43419	-.02707	-.07137	.19476
IB6A	.01195	-.09791	-.18408	.01049	.02222	-.03684
IB6B	-.12202	-.03780	-.10067	-.03780	-.01875	-.11732
IB6C	-.03685	-.01006	-.12507	-.09918	.02718	-.08791
IB6D	-.18522	-.12389	-.19054	.03954	-.04349	.02538

	IB5	IB6A	IB6B	IB6C	IB6D
IB5	1.00000				
IB6A	-.19687	1.00000			
IB6B	-.12982	.44559	1.00000		
IB6C	.00992	.28988	.26231	1.00000	
IB6D	-.06742	.24474	.39237	.22337	1.00000

6. ORGANIZATION, continued

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	3.58976	21.1	21.1
2	1.94956	11.5	32.6
3	1.51041	8.9	41.5
4	1.35952	8.0	49.5
5	1.24879	7.3	56.8
6	1.10428	6.5	63.3
7	.87904	5.2	68.5
8	.85914	5.1	73.5
9	.78092	4.6	78.1
10	.74182	4.4	82.5
11	.61598	3.6	86.1
12	.59472	3.5	89.6
13	.46674	2.7	92.4
14	.40588	2.4	94.7
15	.36591	2.2	96.9
16	.28173	1.7	98.6
17	.24580	1.4	100.0

(c) Varimax Rotated Factor Matrix

	Factor Loadings	
	Factor 1 (Audit Findings)	Factor 2 (Regular Active Monitoring)
IA1	.03585	.06305
IA2	.33501	.10693
IA3	.48005	.12979
IA4	.80145	.08099
IA5	.69101	.08530
IA6	.58859	-.22310
IA7	.19522	-.14818
IA8	.62290	-.01445
IB1	.59713	-.23850
IB2	.14568	-.03411
IB3	-.00880	-.00999
IB4	.30324	-.12092
IB5	.36097	-.19034
IB6A	-.11243	.63214
IB6B	-.06584	.67692
IB6C	-.05533	.39019
IB6D	-.16046	.41897

6. ORGANIZATION, continued

(d) Factor Score Coefficients

	Factor 1	Factor 2
IA1	.03220	.01010
IA2	.09844	.05290
IA3	.07080	.05202
IA4	.40311	.13461
IA5	.19546	.10509
IA6	.15162	-.07977
IA7	.04185	-.04359
IA8	.16176	.01564
IB1	.14003	-.15060
IB2	.04099	-.00589
IB3	.00126	-.00691
IB4	.00752	-.03579
IB5	.06984	-.02313
IB6A	.00801	.32922
IB6B	-.00168	.40119
IB6C	-.00867	.13501
IB6D	-.01325	.13917

7. OPERATIONAL STYLE

(a) Correlation Coefficients

	ID1	ID2	ID3	IIA1	IIA2	IIA3
ID1	1.00000					
ID2	.75602	1.00000				
ID3	.54146	.36537	1.00000			
IIA1	-.06105	-.09386	.12130	1.00000		
IIA2	-.04203	-.18368	.20893	.20596	1.00000	
IIA3	-.15369	-.31472	-.00671	.17414	.31255	1.00000
IIA4	.01485	-.09140	.06887	.24164	.34133	.41257
IIA5	.04679	.03019	.06416	.06444	.23036	.20569
IIA6	.07783	-.05839	.17657	.11970	.28971	.19912
IIA7	-.01632	.03935	.03146	.08291	.16968	.15147
IIA8	.06973	.04904	.03921	.10335	.19313	.20773
IIB1E	.00184	-.06563	.02947	.18232	.34505	.29162
IIB1F	-.03497	-.16676	.05680	.18937	.44235	.23520
IIB1G	-.02731	-.19198	.14424	.25095	.59320	.30948
IIB2A	.10436	.03126	.11933	.15467	.20659	.14082
IIB2B	.09381	-.02344	.19485	.03053	.23471	.28281
IIB2C	.09760	.01408	.25019	.08400	.26635	.22988
IIB2D	.01264	-.09771	.06178	.03534	.13706	.13273
IIB2E	.04534	-.02679	.07963	.05089	.15273	.08581
IIB2F	-.02474	-.05141	.06768	-.04544	.11779	.21469
IIE7	.14960	.15005	-.01535	-.09208	.03090	.04938
IIE8	.05996	-.01764	.07061	.04257	.24596	.20545
IIE9	.11607	-.00093	.07732	.20767	.31964	.23898
IIIA79	.02576	-.07450	.11848	.16275	.24630	.27677
IIIA80	.09215	-.03680	.01415	.08860	.28602	.22722

	IIA4	IIA5	IIA6	IIA7	IIA8	IIB1E
IIA4	1.00000					
IIA5	.37685	1.00000				
IIA6	.28507	.42527	1.00000			
IIA7	.30938	.78634	.44830	1.00000		
IIA8	.30593	.62350	.33791	.50621	1.00000	
IIB1E	.40349	.40532	.37797	.36974	.31047	1.00000
IIB1F	.18055	.07956	.24356	.02046	.10079	.20733
IIB1G	.31512	.12858	.21080	.07120	.10747	.21567
IIB2A	.12986	.07920	.17518	.14831	.16184	.12706
IIB2B	.30260	.26624	.31961	.25167	.25875	.30492
IIB2C	.23876	.18452	.32348	.16658	.22597	.28010
IIB2D	.13929	.06909	.14458	.11971	.00466	.19591
IIB2E	.15704	.22943	.35573	.25266	.13742	.26080
IIB2F	.21164	.33752	.25647	.26045	.19725	.27629
IIE7	.06320	.15296	.16248	.13974	.02725	.16383
IIE8	.16229	.21506	.28418	.19566	.11321	.29739
IIE9	.30318	.25226	.33270	.15891	.12749	.37190
IIIA79	.32281	.15073	.16556	.12886	.17568	.27842
IIIA80	.22089	.11153	.20787	.10498	.11067	.14576

7. OPERATIONAL STYLE, continued

(a) Correlation Coefficients, continued

	IIB1F	IIB1G	IIB2A	IIB2B	IIB2C	IIB2D
IIB1F	1.00000					
IIB1G	.63371	1.00000				
IIB2A	.12268	.18885	1.00000			
IIB2B	.25598	.20732	.25022	1.00000		
IIB2C	.20311	.17676	.25587	.83626	1.00000	
IIB2D	.15125	.22827	.18726	.40477	.40037	1.00000
IIB2E	.22078	.16223	.14664	.32581	.30994	.21031
IIB2F	.12198	.15963	,07278	.18108	.13681	.02468
IIE7	.00725	-.01202	.01330	-.01599	-.00353	-.05074
IIE8	.19901	.14732	.16943	.31698	.30376	.21604
IIE9	.21922	.19982	.15560	.22444	.22987	.21559
IIIA79	.16005	.13911	.21783	.40108	.40080	.26871
IIIA80	.23029	.16590	.20339	.34394	.37818	.22616

	IIB2E	IIB2F	IIE7	IIE8	IIE9	IIIA79	IIIA80
IIB2E	1.00000						
IIB2F	.03294	1.00000					
IIE7	.17704	.08507	1.00000				
IIE8	.21393	.09229	.46746	1.00000			
IIE9	.22873	.15507	.21420	.39521	1.00000		
IIIA79	.10874	.04909	-.04578	.21486	.18431	1.00000	
IIIA80	.11042	.01337	.15686	.20744	.19807	.54153	1.00000

7. OPERATIONAL STYLE, continued

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	5.77454	23.1	23.1
2	2.40088	9.6	32.7
3	2.14799	8.6	41.3
4	1.62026	6.5	47.8
5	1.50339	6.0	53.8
6	1.20697	4.8	58.6
7	1.04326	4.2	62.8
8	.96350	3.9	66.6
9	.87317	3.5	70.1
10	.78035	3.1	73.3
11	.73191	2.9	76.2
12	.71255	2.9	79.0
13	.66522	2.7	81.7
14	.63662	2.5	84.2
15	.61137	2.4	86.7
16	.53381	2.1	88.8
17	.50752	2.0	90.9
18	.47865	1.9	92.8
19	.42313	1.7	94.5
20	.33588	1.3	95.8
21	.30570	1.2	97.0
22	.25786	1.0	98.1
23	.19484	.8	98.8
24	.16186	.6	99.5
25	.12877	.5	100.0

(c) Varimax Rotated Factor Matrix

	Factor Loadings		
	Factor 1 (Active/Tough Review)	Factor 2 (Review Monitoring)	Factor 3 (State Involvement)
ID1	.02063	.02526	.86906
ID2	-.22162	.04445	.82527
ID3	.21122	.02439	.49678
IIA1	.26230	.06954	-.08772
IIA2	.57146	.18687	-.10783
IIA3	.44306	.21951	-.24352
IIA4	.40900	.38862	-.07064
IIA5	.06334	.91451	.01417
IIA6	.35483	.49519	.06641
IIA7	.05068	.81065	.00840
IIA8	.12590	.60462	.03560
IIB1E	.38472	.47394	-.03654
IIB1F	.52882	.03819	-.12428
IIB1G	.55424	.07040	-.15042
IIB2A	.33664	.10100	.11273
IIB2B	.63715	.22358	.18195
IIB2C	.64737	.15231	.22452
IIB2D	.44301	.02890	.04610
IIB2E	.30879	.25081	.07969
IIB2F	.12729	.35207	-.04641
IIE7	.03558	.21299	.14839
IIE8	.38165	.24538	.10006
IIE9	.40378	.26894	.07002
IIIA79	.52062	.10634	.05056
IIIA80	.49497	.06696	.08195

(d) Factor Score Coefficients

	Factor 1	Factor 2	Factor 3
ID1	.07396	-.04043	.54640
ID2	-.14654	.05379	.37661
ID3	.03796	-.02297	.01909
IIA1	.04865	-.00544	.00795
IIA2	.14799	-.03100	.01456
IIA3	.07203	.03685	-.04421
IIA4	.07121	.04281	-.04780
IIA5	-.21899	.65087	-.03673
IIA6	.04055	.10069	.03389
IIA7	-.04239	.18553	.01272
IIA8	.00070	.04025	-.02956
IIB1E	.05723	.09741	-.03942
IIB1F	.11911	-.01908	-.04667
IIB1G	.14836	-.04118	-.06030
IIB2A	.05360	.01940	.00803
IIB2B	.17792	-.04202	.05220
IIB2C	.19340	-.00479	.12882
IIB2D	.08338	-.03776	.01677
IIB2E	.03723	.01185	.02870
IIB2F	.00174	.02455	.00310
IIE7	.01183	.02929	.00241
IIE8	.05272	.02429	.04810
IIE9	.08178	.01412	-.01520
IIIA79	.12597	-.03276	.03373
IIIA80	.09805	-.03138	-.01451

8. ADDITIONAL REVIEW

(a) Correlation Coefficients

	IVA1	IVA2	IVA3	IVA4	IVA5	IVA6
IVA1	1.00000					
IVA2	.05391	1.00000				
IVA3	.11766	.11601	1.00000			
IVA4	-.00391	.12861	.10100	1.00000		
IVA5	-.04336	-.01222	.11647	-.01559	1.00000	
IVA6	.20734	.12418	.19738	.08345	-.06387	1.00000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	1.47072	24.5	24.5
2	1.09133	18.2	42.7
3	1.04240	17.4	60.1
4	.86622	14.4	74.5
5	.79670	13.3	87.8
6	.73264	12.2	100.0

(c) Factor Matrix Using Principal Factors With Iterations

	Factor Loadings
IVA1	.31285
IVA2	.26820
IVA3	.38855
IVA4	.19351
IVA5	-.01355
IVA6	.53409

(d) Factor Score Coefficients

	Factor 1 (Review Initiatives)
IVA1	.18833
IVA2	.16239
IVA3	.25483
IVA4	.11293
IVA5	-.00482
IVA6	.41484

(5) The fifth task in the analyses was a second-order factor analysis based on the 13 factors identified through Task (4). That is, a factor analysis was performed of the correlation matrix based on factor scores from the initial 13 factors. Solutions were obtained first with two second-order factors, then with four second-order factors. The results of these analyses are presented in the same form as the original factor analyses except that no factor score coefficients are presented. These second-order factor analyses did not yield super-factors which appeared to present useful interpretations. For this reason, no further use is recommended for this phase of the analysis.

Second order Factor Analysis

(a) Correlation Coefficients (including statistical significance)[1]

	Factor 01	Factor 02	Factor 03	Factor 04	Factor 05
Factor 01	1.0000				
Factor 02	.0147 P= .421	1.0000			
Factor 03	-.0082 P= .456	.5656 P= .000	1.0000		
Factor 04	.0065 P= .465	.4679 P= .000	.3563 P= .000	1.0000	
Factor 05	.0614 P= .202	.5351 P= .000	.4587 P= .000	.1796 P= .007	1.0000
Factor 06	-.0006 P= .497	.2143 P= .002	.2419 P= .000	.1309 P= .037	.1062 P= .075
Factor 07	-.0228 P= .378	.5257 P= .000	.4162 P= .000	.2917 P= .000	.4035 P= .000
Factor 08	.1232 P= .047	.4307 P= .000	.2859 P= .000	.2564 P= .000	.3962 P= .000
Factor 09	.0265 P= .360	-.0704 P= .170	-.1419 P= .027	-.0541 P= .232	-.0786 P= .143
Factor 10	-.0098 P= .447	.2350 P= .001	.4704 P= .000	.2627 P= .000	.1992 P= .003
Factor 11	.1004 P= .086	.5258 P= .000	.2863 P= .000	.3435 P= .000	.4397 P= .000
Factor 12	.1184 P= .054	.1542 P= .018	.2353 P= .001	.0041 P= .478	.2096 P= .002
Factor 13	-.0109 P= .441	.3090 P= .000	.4960 P= .000	.2288 P= .001	.1657 P= .012

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[1] The p values shown are one-tailed. To obtain the two-tailed probability associated with the given correlation coefficient, the p value must be doubled.

Correlation Coefficients, continued

	Factor 06	Factor 07	Factor 08	Factor 09	Factor 10
Factor 06	1.0000				
Factor 07	.3769 P= .000	1.0000			
Factor 08	-.0032 P= .482	.1677 P= .011	1.0000		
Factor 09	-.0604 P= .207	-.1129 P= .062	-.0331 P= .327	1.0000	
Factor 10	.4129 P= .000	.4102 P= .000	.1205 P= .051	-.1250 P= .045	1.0000
Factor 11	.2430 P= .000	.5310 P= .000	.4818 P= .000	-.0198 P= .394	.0499 P= .250
Factor 12	.1035 P= .080	.0891 P= .113	-.0178 P= .405	-.2094 P= .002	-.0056 P= .470
Factor 13	.2659 P= .000	.2473 P= .000	.1126 P= .063	-0626 P= .198	.3480 P= .000

	Factor 11	Factor 12	Factor 13
Factor 11	1.0000		
Factor 12	.0098 P= .447	1.0000	
Factor 13	.1281 P= .041	.2489 P= .000	1.0000

(b) Eigenvalues

Factor	Eigenvalue	Pct of Var	Cum Pct
1	3.99626	30.7	30.7
2	1.55000	11.9	42.7
3	1.24648	9.6	52.3
4	1.01126	7.8	60.0
5	.96541	7.4	67.5
6	.88008	6.8	74.2
7	.77415	6.0	80.2
8	.64915	5.0	85.2
9	.54616	4.2	89.4
10	.43491	3.3	92.7
11	.38343	2.9	95.7
12	.33216	2.6	98.2
13	.23054	1.8	100.0

(c) Varimax Rotated Factor Matrix

Four Factors:

	Factor Loadings			
	Factor 1*	Factor 2*	Factor 3*	Factor 4*
Factor 01	.10141	-.07823	-.02643	.10989
Factor 02	.70683	.33350	.16175	.12951
Factor 03	.42449	.69789	.10789	.20626
Factor 04	.39497	.28782	.13057	-.04264
Factor 05	.57832	.19347	.08153	.20724
Factor 06	.02670	.23380	.59927	.07500
Factor 07	.43025	.23369	.56773	.06998
Factor 08	.61814	.09001	-.07708	-.02615
Factor 09	-.01850	-.12254	-.06815	-.19421
Factor 10	.04529	.61618	.40614	-.06386
Factor 11	.79569	-.16595	.38901	.01698
Factor 12	.00605	.08357	.01871	.89811
Factor 13	.13215	.48625	.17534	.20786

* F1 = Quality Methods, Data Quality, Audit Findings, Review Initiatives

F2 = Quality Outcomes, Active and Tough Review, Review Initiatives

F3 = Data Communication, Focusing

F4 = State Involvement

Residuals: Cost, Data Use, Regular Active Monitoring

Two Factors:

	Factor Loadings	
	Factor 1*	Factor 2*
Factor 01	.11261	-.04903
Factor 02	.69748	.41864
Factor 03	.35622	.68172
Factor 04	.37231	.30970
Factor 05	.57174	.27529
Factor 06	.06839	.47389
Factor 07	.44043	.49910
Factor 08	.60019	.05020
Factor 09	-.01334	-.19030
Factor 10	.02608	.67245
Factor 11	.76378	.12277
Factor 12	.04625	.23230
Factor 13	.08751	.56998

* F1 = Quality Methods, Data Quality, Focusing, Audit Findings, Review Monitoring

F2 = Quality Methods, Quality Outcomes, Data Communication, Focusing, Active and Tough Review, Review Initiatives

Residuals: Cost, Data Use, Regular Active Monitoring, State Involvement

(6) The sixth task was a set of correlations of the 13 factor scores with each of two variables which measure impact. Those variables (see footnote, page 2) are the 1979 and 1980 reduction in days of care corresponding to specific PSRO objectives (item IIIB1), and the 1979 reduction in total days of care (item IIIB2). These correlations are shown on the following page. The reader will note that most correlations involving reductions in objective-specific days are statistically significant; exceptions are Data Communication (Factor 06), Regular Active Monitoring (Factor 09), State Involvement (Factor 12), and Review Initiatives (Factor 13). On the other hand, none of the correlations with respect to _total_ days of care is significant.

Of the nine statistically significant correlations involving objective-specific days of care, all but one are positive. These positive correlations denote that the greater the level of PSRO activism, the greater the reduction in days of care. The one negative correlation is that involving Cost (Factor 01);

since increasing values of the Cost factor denote *decreasing* values of unit cost (see footnote, page 3), this implies that lower unit costs (per discharge and/or per hospital) are associated with *smaller* reductions in days of care.

Correlation Coefficients (including statistical significance)[1]

Impact Variable	Factor 01	Factor 02	Factor 03	Factor 04	Factor 05
Reduction in Objective-Specific Days (1979-80)	-.2355 P= .001	.1979 P= .003	.2614 P= .000	.2104 P= .002	.2307 P= .001
Reduction in Total Days of Care (1979)	-.0976 P= .093	.1033 P= .080	.1112 P= .065	.0252 P= .366	.0038 P= .479

	Factor 06	Factor 07	Factor 08	Factor 09	Factor 10
Reduction in Objective-Specific Days (1979-80)	.0523 P= .239	.1650 P= .012	.1603 P= .014	-.0527 P= .237	.2179 P= .001
Reduction in Total Days of Care (1979)	.0499 P= .249	-.0069 P= .463	-.1126 P= .063	-.0401 P= .293	.0258 P= .364

	Factor 11	Factor 12	Factor 13
Reduction in Objective-Specific Days (1979-80)	.2260 P= .001	-.0640 P= .193	.1097 P= .068
Reduction in Total Days of Care (1979)	-.0676 P= .180	.0127 P= .432	.0236 P= .374

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[1] The p values shown are one-tailed. To obtain the two-tailed probability associated with a given correlation coefficient, the p value must be doubled.

(7) The seventh task involved relating the longevity of the PSROs to their performance on the factors. The following tables show factor score means, standard deviations, and variances, first for all PSROs combined (N=173) and then for each of six categories of longevity defined as follows:

0 months
1-12 months
13-24 months
25-36 months
37-48 months
49 months or more

From among the 13 sets of tables the reader will notice that Factors 03 (Quality Outcomes), 04 (Data Use), 07 (Focusing), 10 (Active and Tough Review), 12 (State Involvement), and 13 (Review Initiatives) each show consistent trends in mean factor score performance; in each case the factor score increases (i.e., there is an increase in desirable performance) as longevity increases. In other words, older PSROs are associated with positive performance on these six factors.

Factor 01: Cost

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0257	.8232	.6777	173
0 months	.2181	.8573	.7350	19
1-12 months	.0215	.7174	.5146	48
13-24 months	.2296	.6783	.4601	16
25-36 months	-.0103	.9146	.8364	35
37-48 months	-.0677	.9390	.8817	48
49 months or more	-.1140	.2576	.0664	7

Factor 02: Quality Methods

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0092	.8769	.7690	173
0 months	-.8849	1.4787	2.1864	19
1-12 months	.1277	.7139	.5097	48
13-24 months	.3777	.2838	.0806	16
25-36 months	.2050	.6812	.4641	35
37-48 months	-.0818	.8072	.6516	48
49 months or more	.4251	.2420	.0586	7

Factor 03: Quality Outcomes

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0099	.7951	.6322	173
0 months	-1.0265	.7459	.5564	19
1-12 months	-.0655	.6823	.4655	48
13-24 months	.1126	.5733	.3287	16
25-36 months	.1513	.7795	.6076	35
37-48 months	.1586	.6449	.4159	48
49 months or more	.8884	.7925	.6281	7

Factor 04: Data Use

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0193	.8262	.6827	173
0 months	-.6330	1.0549	1.1128	19
1-12 months	-.0038	.8643	.7470	48
13-24 months	-.2728	.9865	.9732	16
25-36 months	.2478	.4149	.1721	35
37-48 months	.1878	.7747	.6001	48
49 months or more	.3180	.2359	.0556	7

Factor 05: Data Quality

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0237	.7744	.5997	173
0 months	-.6084	1.2416	1.5415	19
1-12 months	.0914	.6804	.4630	48
13-24 months	.2673	.4598	.2115	16
25-36 months	.0777	.7012	.4916	35
37-48 months	.0297	.7066	.4993	48
49 months or more	.4082	.2528	.0639	7

Factor 06: Data Communication

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0194	.8475	.7183	173
0 months	-.8930	.9985	.9970	19
1-12 months	-.3550	1.0530	1.1088	48
13-24 months	.3756	.4553	.2073	16
25-36 months	.2567	.5909	.3492	35
37-48 months	.3088	.3671	.1347	48
49 months or more	.1203	.5487	.3011	7

Factor 07: Focusing

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0091	.9136	.8346	173
0 months	-.9633	1.5083	2.2750	19
1-12 months	.0063	.8257	.6817	48
13-24 months	.1493	.8025	.6439	16
25-36 months	.1733	.5484	.3007	35
37-48 months	.1137	.7996	.6394	48
49 months or more	.3584	.1130	.0128	7

Factor 08: Audit Findings

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0549	.8200	.6723	173
0 months	-.1983	1.2360	1.5278	19
1-12 months	.1874	.2923	.0854	48
13-24 months	.2811	.0780	.0061	16
25-36 months	.2374	.2231	.0498	35
37-48 months	-.2153	1.2586	1.5841	48
49 months or more	.2572	.0942	.0089	7

Factor 09: Regular Active Monitoring

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0257	.8066	.6506	173
0 months	.0374	.8791	.7728	19
1-12 months	.0440	.7788	.6065	48
13-24 months	-.1496	.6713	.4506	16
25-36 months	-.0133	.5809	.3375	35
37-48 months	-.1070	1.0176	1.0355	48
49 months or more	.1040	.5157	.2659	7

Factor 10: Active and Tough Review

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0267	.8963	.8034	173
0 months	-.4010	.7450	.5550	19
1-12 months	-.4456	.7603	.5781	48
13-24 months	-.1119	.9399	.8835	16
25-36 months	.2552	.8354	.6979	35
37-48 months	.3079	.9087	.8257	48
49 months or more	.3523	.9021	.8138	7

Factor 11: Review Monitoring

Longevity	Mean	Standard Deviation	Variance	N
For entire population	-.0172	.9773	.9552	173
0 months	-.9646	1.8623	3.4682	19
1-12 months	.2681	.2050	.0420	48
13-24 months	.2828	.1288	.0166	16
25-36 months	.2760	.1179	.0139	35
37-48 months	-.2237	1.1685	1.3655	48
49 months or more	-.1393	1.1125	1.2376	7

Factor 12: State Involvement

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0592	.8470	.7175	173
0 months	-.6266	1.5132	2.2898	19
1-12 months	.0763	.7901	.6243	48
13-24 months	.0558	.7128	.5081	16
25-36 months	.1975	.6734	.4534	35
37-48 months	.1595	.6245	.3899	48
49 months or more	.4315	.2619	.0686	7

Factor 13: Review Initiatives

Longevity	Mean	Standard Deviation	Variance	N
For entire population	.0202	.6802	.4626	173
0 months	-.4641	.5037	.2537	19
1-12 months	-.2730	.5251	.2758	48
13-24 months	-.0152	.4885	.2386	16
25-36 months	.1014	.6775	.4590	35
37-48 months	.2930	.6529	.4263	48
49 months or more	1.1482	.5007	.2507	7

(8) This eighth analysis is concerned with the prediction of the two dependent variables extracted from the questionnaire (items IIIB1 and IIIB2) and is based on an ordered regression analysis similar to those performed in earlier years' PSRO evaluations. Several of the factors were found to be significant predictors of reductions in days of care corresponding to specific PSRO objectives (item IIIB1) but not of the reduction in total days of care (item IIB2). The table below shows the summary of the order regression analysis for both IIIB1 and IIIB2.

Regression Model with Questionnaire Items IIIB1 and IIIB2 as Criteria

		IIIB1			IIIB2		
Source	df	Increase to R^2	F	P-value	Increase to R^2	F	P-value
Demographic	10	.1534	3.35	.001	.0936	17.20	.000
Region	3	.0036	.27	.847	.0314	1.92	.129
Factors	13	.1751	2.94	.001	.0512	.72	.741
Longevity	1	.0015	.33	.567	.0028	.51	.472
Cost Commission (CC)	1	.0001	.02	.888	.0022	.40	.528
Region X Longevity	3	.0256	1.87	.137	.0488	2.99	.033
CC X Longevity	1	.0002	.04	.823	.0082	1.51	.223
Total	32	.3595			.2381		

Note that both the demographic variables and the 13 factors are significant predictors of IIIB1, whereas the demographic variables and the region by longevity interaction are significant predictors of IIIB2.

The table on the next page summarizes the addition of the factors to the multiple regression involving IIIB1. Note that the partial correlations show the relation between each factor and IIIB1 holding demographic and regional variables constant. The corresponding F value provides a significance test for each factor. Note that Factors 01 (Cost), 02 (Quality Methods), 03 (Quality Outcomes), 04 (Data Use), 05 (Data Quality), 07 (Focusing), 10 (Active and Tough Review), and 11 (Review Monitoring) are all significant at this stage of analysis.

Summary for Factor Scores at Step 2 of the Ordered Regression Analysis

	Beta In	Partial	Tolerance	F
Factor 01	-.22133	-.20184	.70101	6.710
Factor 02	.17109	.17686	.90072	5.102
Factor 03	.21467	.22589	.93331	8.495
Factor 04	.19779	.20062	.86720	6.626
Factor 05	.20767	.21764	.92582	7.856
Factor 06	.03821	.03966	.90796	.249
Factor 07	.18840	.19618	.91399	6.324
Factor 08	.09316	.09513	.87884	1.443
Factor 09	-.07420	-.07802	.93209	.968
Factor 10	.21212	.21219	.84350	7.449
Factor 11	.23397	.24134	.89691	9.772
Factor 12	-.01380	-.01338	.79254	.028
Factor 13	.12903	.13636	.94140	2.994

The Cost factor (01) enters with a negative sign for its beta weight meaning that spending more (lower factor score) yields greater reductions in objective-specific days of care. That is, the more a PSRO spends on review, the more it seems to save in days of care related to specific objectives. The other factors enter the equation with positive beta weights meaning that increased levels in the factor are associated with increased savings in objective-specific days of care. These findings are consistent with those produced in analysis (6).

(9) The next two regression analyses used a dependent variable separate from those produced by the questionnaire, i.e., 1980 total days of care rate (TDC80) as obtained from the Medicare 100% Claims File. The first table presents a summary for the ordered regression analysis in which the factor scores are included as potential predictors. This analysis is very similar to that presented above for item IIIB2 as the dependent variable. The sole exception is the inclusion of total days of care in 1974 (TDC74) as a base rate since the dependent variable in this instance is not expressed in change terms. Note that the base rate, demographic variables, region, and region by longevity interaction are each statistically significant. Consistent with the findings for variable IIIB2 in the preceding analysis, the factor scores do not enter significantly in this prediction model.

Source	df	Increase to R^2	F	P-value
Base	1	.74517	1081.76	.000
Demographic	10	.12726	18.47	.000
Region	3	.00577	2.79	.043
Factors	13	.01089	1.22	.271
Longevity	1	.00093	1.35	.247
Cost Commission (CC)	1	.00001	.01	.920
Region X Longevity	3	.01268	6.14	.0006
CC X Longevity	1	.00155	2.25	.136
Total	33	.90426		

The second analysis in this portion of the study is very similar except that the questionnaire subtotals of sections I, II, and IV are used as independent variables in place of the factor scores. Section III was not input since it contains dependent variables (i.e., IIIB1 and IIIB2). Again, the base rate, demographic variables, region, and region by longevity interaction are found to be significant predictors. As in the case of the factor scores, the questionnaire subtotals do not enter significantly in this prediction model.

Regression Model for TDC80 as Criterion using Questionnaire Subtotals

Source	df	Increase to R^2	F	P-value
Base (TDC74)	1	.7452	1095.52	.000
Demographic	10	.1273	18.71	.000
Region	3	.0058	2.83	.040
Questionnaire Subtotals	3	.0016	.80	.496
Longevity	1	.0001	.22	.640
Cost Commission (CC)	1	.0000	.01	.920
Region X Longevity	3	.0174	8.53	.000
CC X Longevity	1	.0013	1.85	.176
Total	23	.8987		

(10) The tenth analysis was an exploratory investigation of the individual questionnaire items to determine which ones would enter the regression model and be significant after the base and demographic variables as predictors of TDC 80. The four tables that follow are for the items in questionnaire sections I, II, III, and IV. The reader will note from the section I analysis that 2 of 26 items (IA7 and IB3) are significant. Both variables, it will be recalled, load on the operational style factor, but are minor variables in the sense of loading on that factor. The second run (section II) indicates that 5 of the 44 variables are significant. These are IIB2F, IIB1F, and IIB1G from the operational style factor, IIC6 from the quality methods factor, and IID3 from the data profile factor.

The third run concerns section III and only variable IIIA80 (from the active-tough review factor) is significant. This omits item IIIB2 which is a criterion and IIISTOT which, as the total section score, also reflects the interior variables. Therefore, we had 3 out of 8 items significant, but only 1 out of 6 which were of potential interest.

The last analysis (section IV) had no significant variables.

In summary, only 8 of the 84 non-criterion variables were significant. Any interpretation of these results would be quite risky, since we have been unable to see any pattern that would argue against the hypothesis of random significance (i.e., the likelihood that these 8 out of 84 are simply Type I errors which should occur at a rate of 5% for uncorrelated variables and at a higher rate in cases such as this where the predictors are, in fact, intercorrelated).

Questionnaire Section I

Variable	Beta In	Partial	Tolerance	F
IA1	-.01576	-.04346	.92606	.297
IA2	.04419	.12162	.92243	2.357
IA3	.02193	.05758	.83958	.522
IA4	.05242	.13735	.83626	3.019
IA5	.04412	.11505	.82807	2.106
IA6	.00779	.02155	.93248	.073
IA7	-.05905	-.16264	.92397	4.266*
IA8	-.02562	-.07078	.92973	.791
IB1	.00624	.01748	.95437	.048
IB2	-.03073	-.08137	.85398	1.046
IB3	-.07709	-.18929	.73426	5.834*
IB4	.00431	.01144	.85582	.021
IB5	.02952	.08297	.96200	1.088
IB6A	.02556	.07096	.93869	.795
IB6B	.01483	.04121	.94033	.267
IB6C	-.01022	-.02822	.92855	.125
IB6D	-.00340	-.00930	.91032	.014
IB6E1	.01541	.04241	.92278	.283
IB6E2	-.02533	-.06959	.91937	.764
IC1	.00439	.01199	.90988	.023
IC2	.05020	.13000	.81671	2.699
IC3	.05147	.11113	.56767	1.963
ID1	.00085	.00215	.78304	.001
ID2	-.01051	-.02541	.71243	.101
ID3	-.00656	-.01701	.81798	.045
ISTOT	.02623	.06702	.79508	.708

* Statistically significant ($p<.05$)

Questionnaire Section II

Variable	Beta In	Partial	Tolerance	F
IIA1	-.03453	-.08685	.77065	1.193
IIA2	.02565	.06972	.89960	.767
IIA3	.00447	.01151	.80880	.021
IIA4	.02119	.05637	.86232	.501
IIA5	.03488	.09301	.86611	1.370
IIA6	.05618	.15287	.90197	3.757
IIA7	.03900	.10653	.90889	1.802
IIA8	.00747	.02016	.88804	.064
IIB1A	.01110	.03015	.89817	.143
IIB1B	.01133	.03070	.89354	.148
IIB1C	-.02386	-.06379	.87073	.641
IIB1D	-.02386	-.06098	.79526	.586
IIB1E	.01502	.04059	.88937	.259
IIB1F	.06058	.15759	.82430	3.999*
IIB1G	.11782	.29942	.78660	15.462*
IIB2A	-.02186	-.06080	.94228	.583
IIB2B	-.02894	-.07877	.90226	.980
IIB2C	-.04293	-.11622	.89267	2.150
IIB2D	-.00175	-.00469	.87617	.003
IIB2E	.01961	.05397	.92284	.459
IIB2F	.07107	.18772	.84986	5.735*
IIC1	.01182	.03179	.88027	.159
IIC2	.03316	.09169	.93095	1.331
IIC3	-.02465	-.06636	.88301	.694
IIC4	-.05189	-.13961	.88160	3.121
IIC5	-.01670	-.04599	.92379	.333
IIC6	-.08936	-.23651	.85309	9.302*
IIC7	-.04957	-.12935	.82932	2.671
IIC8	-.02777	-.07564	.90333	.903
IID1	.02116	.05608	.85564	.495
IID2	.03245	.08968	.93020	1.273
IID3	-.05757	-.15982	.93874	4.115*
IID4	.01715	.04698	.91397	.347
IIE1	-.05246	-.14421	.92048	3.334
IIE2	-.00639	-.01751	.91542	.048
IIE3	-.02028	-.05269	.82244	.437
IIE4	-.03119	-.08381	.87953	1.110
IIE5	.00975	.02659	.90592	.111
IIE6	-.01896	-.05216	.92151	.428
IIE7	-.03884	-.10314	.85895	1.688
IIE8	-.01266	-.03360	.85772	.177
IIE9	-.01575	-.04138	.84033	.269
IIE10	-.00158	-.00424	.87134	.003
IISTOT	-.01453	-.03903	.87955	.240

* Statistically significant ($p<.05$)

Questionnaire Section III

Variable	Beta In	Partial	Tolerance	F
IIIA79	-.04741	-.12904	.90231	2.659
IIIA80	-.08625	-.23116	.87481	8.863*
IIIB1	-.03939	-.10104	.80142	1.619
IIIB2	-.28189	-.75554	.87495	208.829
IIIC	-.01959	-.05469	.94942	.471
IIIBB	.02302	.06255	.89901	.617
IIIBC	-.00602	-.01687	.95703	.045
IIISTOT	-.13510	-.36326	.88056	23.866

Questionnaire Section IV

Variable	Beta In	Partial	Tolerance	F
IVA1	.00443	.01238	.94968	.024
IVA2	-.02472	-.06762	.91163	.721
IVA3	.01983	.05376	.89550	.455
IVA4	-.02674	-.07323	.91317	.846
IVA5	-.00774	-.01934	.76045	.059
IVA6	.03390	.09427	.94169	1.408
IVB	.00240	.00653	.90587	.007
IVSTOT	.01288	.03569	.93515	.200

* Statistically significant ($p < .05$)

(11) The eleventh and final set of analyses involved variables drawn from the ORD "Focused Review Questionnaire" which reported data for a total of 134 PSRO sites. This data base was merged with the Project Officer's questionnaire file and, due to a variety of mismatches, the total usable sample comprised 122 sites. However, the focused review items included several instances of missing data and the sample sizes for the various analyses were generally less than 122.

Two major independent variables were identified. First, a "longevity of focusing" measure was created by counting the number of months prior to January 1982 that the PSRO first implemented focused or alternative forms of review. Second, a dummy variable labeled "focused review" was created where a value of 1 indicated that the PSRO performed focused review as opposed to a value of 0 for alternative review or other non-100% review systems.

The dependent variables from previous analyses were the 1980 total days of care rate (TDC80) and the reduction in objective-specific days of care. In addition, 1979 and 1980 review cost per discharge (Cost 79 and Cost 80) were available from the Focused Review Questionnaire. For purposes of regression modeling, Cost 80 was considered as a dependent variable and Cost 79 was entered on the first step as a predictor. Overall, the regression models were similar to those reported previously with the base variable (if relevant), 10 demographic variables, and 3 regional dummy variables being entered prior to the independent variable ("longevity of focusing" or "focused review") and the Cost Commission dummy variable.

Tables a-c present multiple regression results for the longevity of focusing variable. Neither the longevity nor the Cost Commission variable accounted for significant variability in any of the 3 dependent measures.

Table a.

Criterion = TDC 80

Source	df*	Increase to R^2	F	P
Base (TDC 74)	1	.73450	530.50	.000
Demographic	10	.11842	8.55	.000
Region	3	.00549	1.32	.272
Longevity of Focusing	1	.00026	.18	.672
Cost Commission	1	.00149	1.08	.301
	16	.86016		

* Total n=118

Table b.

Criterion = Reduction in Objective-Specific Days of Care

Source	df*	Increase to R^2	F	P
Demographic	10	.10289	1.18	.313
Region	3	.01007	.39	.760
Longevity of Focusing	1	.00012	.01	.420
Cost Commission	1	.00022	.03	.863
	15	.11330		

* Total n=118

Table c.

Criterion = Cost 80

Source	df*	Increase to R^2	F	P
Base (Cost 79)	1	.29390	42.64	.000
Demographic	10	.08409	1.22	.290
Region	3	.01586	.77	.514
Longevity of Focusing	1	.00053	.08	.778
Cost Commission	1	.00591	.86	.356
	16	.40029		

* Total n=104

Tables d-f present comparable results for the focused review dummy variable and once again, no statistically significant outcome was noted for the programmatic independent variable.

Table d.

Criterion = TDC 80

Source	df*	Increase to R^2	F	P
Base	1	.72742	515.76	.000
Demographic	10	.12184	8.64	.000
Region	3	.00683	1.61	.191
Focused Review dummy	1	.00001	.01	.921
Cost Commission	1	.00146	1.04	.310
	16	.85756		

* Total n=122

Table e.

Criterion = Reduction in Objective-Specific Days of Care

Source	df*	Increase to R^2	F	P
Demographic	10	.10855	1.26	.263
Region	3	.01020	.40	.753
Focused Review dummy	1	.00390	.45	.504
Cost Commission	1	.00094	.11	.741
	15	.12359		

*Total n=122

Table f.

Criterion = Cost 80

Source	df*	Increase to R^2	F	P
Base	1	.29390	43.13	.000
Demographic	10	.08409	1.23	.284
Region	3	.01586	.78	.508
Focused Review dummy	1	.00894	1.31	.256
Cost Commission	1	.00433	.64	.426
	16	.40712		

* Total n=104

A search was then made for significant correlates of Cost 80 by means of stepwise multiple regression techniques. In addition to the two focusing variables, a general measure of data used was created by summing items WHSQBU through WFYINTU, the use of PHDDS data profiles (from item WPHDDSU) was included, and a measure of the currency of the PHDDS data set (CURDATA) was included. As shown in Table g, none of the variables contributed significantly to predicting cost changes after demographic and regional effects were eliminated.

Table g.

Criterion = Cost 80

Source	df*	Increase to R^2	F	P
Base (Cost 79)	1	.31478	46.41	.000
Demographic	10	.07986	1.18	.316
Region	3	.02805	1.38	.255
Data Used**	1	.00895	1.32	.254
Focused Review dummy**	1	.00876	1.29	.259
PHDDS	1	.00084	.12	.730
Currency of Data**	1	.00220	.32	.573
Longevity of Focusing**	1	.00034	.05	.824
	19	.44378		

* Total n=102
** These variables were entered in a step-wise manner.

Finally, attention was narrowed to just those PSRO sites which practiced focused review in order to study the impact of focusing out as opposed to focusing in for purposes of review. The percent focused out was calculated by summing questionnaire items FOARCSR through FOCSONLY, while the percent focused in resulted from summing items FIARCSR through FICRONLY. Table h presents results when the total percent of focusing (In/Out Sum) and the difference between percents focused in and out (In/Out Diff) are used as predictors. Neither variable contributes significantly to the prediction of cost.

Table h

Criterion = Cost 80

Source	df*	Increase to R^2	F	P
Base (Cost 79)	1	.33934	47.29	.000
Demographic	10	.09721	1.35	.221
Region	3	.03239	1.50	.222
In/Out Diff**	1	.00602	.84	.362
In/Out Sum**	1	.00837	1.17	.283
	16	.48333		

* Total n=89

** These variables were entered in a step-wise manner.

APPENDIX A. SUMMARY OF QUESTIONNAIRE ITEMS

NOTE: Pages A-1 through A-5 summarize the questionnaire items contained in the PSRO Performance Evaluation Questionnaire developed by HSQB. All of these items, except IIIB1 and IIIB2, were used as independent variables in the study; items IIIB1 and IIIB2 served as dependent variables.

Pages A-6 and A-7 define the variables used in that portion of this study which is based on the Focused Review Questionnaire developed by ORD.

PSRO PERFORMANCE EVALUATION ("PROJECT OFFICER") QUESTIONNAIRE

I. Organization and Program Management (300 pts.)

Item No.	Topic Covered	Points Assigned (max.)
IA	Board and Committee Commitment (75 pts.)	
IA1	Frequency and attendance at board meetings	5
IA2	Discuss and approve budgets?	10
IA3	Regularly monitor expenditures?	10
IA4	Participate in establishing and monitoring objectives?	15
IA5	Involved in formulating and monitoring policy?	10
IA6	Monitor PSRO activities and recommend intervention?	10
IA7	Evaluate Executive/Medical Directors at least annually?	5
IA8	Create representative committees which carry out assigned functions?	10
		75
IB	Administrative and Financial Management (75 pts.)	
IB1	Financial/personnel management systems well documented	5
IB2	Expenditures within negotiated limits	15
IB3	Timely submission of required reports, plans, etc.	15
IB4	Reports, plans, etc. well-developed and accurate	15
IB5	Staff performance reviewed at least annually	5
IB6	Selected deficiencies in two most recent HHSAA audits	20
		75
IC	Cost Efficiency (120 pts.)	
IC1	Actual vs. negotiated hospital review unit cost per discharge	30
IC2	Total cost per discharge	70
IC3	Cost per hospital	20
		120
ID	Relationship to State (30 pts.)	
ID1	PSRO communicates with State to resolve issues	10
ID2	Little or no disagreement between State and PSRO	10
ID3	PSRO has modified review system to meet State needs where problems were identified (by State or PSRO)	10
		30

II. Performance of Review Operations - Compliance and Process (850 pts.)

Item No.	Topic Covered	Points Assigned (max.)
IIA	Acute Care Review (145 pts.)	
IIA1	At least 10 denials per 1000 discharges under review	15
IIA2	PSRO reviews medical necessity and/or appropriateness of setting for selected surgical procedures	20
IIA3	Rebuttal or revocation of waiver of liability recommended within past 24 months	30
IIA4	Medically unnecessary days denied during an otherwise certified stay within past 24 months	20
IIA5	PSRO monitors review system, at least annually, through random sampling of referrals and decisions, with evidence of feedback and corrective action when needed	15
IIA6	PSRO monitors samples of "focused out" cases	15
IIA7	Delegated and nondelegated hospitals monitored, at least annually, through review of original medical records (with evidence of feedback/corrective action)	15
IIA8	Denials monitored to assure appropriateness	15
		145
IIB	Special Actions to Address Identified Problems (300 pts.)	
IIB1	Modification of Review System (90 pts.)	
	(a) PSRO is focusing or has an approved alternative system	10
	(b) Modified review system is based on data and reflects PSRO objectives	15
	(c) System is modified to address problems identified	20
	(d) System focuses on problems in admission policy	15
	(e) PSRO addresses problems through education	10
	(f) " " " " preadmission review	10
	(g) " " " " preprocedure review	10
		90
IIB2	Adverse Actions (210 pts.)	
	(a) PSRO has procedures for dealing with sanctions	10
	(b) Warning letter(s) issued on potential sanctions	60
	(c) Problem resolution has been documented/PSRO has worked with potential sanctionee to eliminate need to proceed	60
	(d) PSRO has submitted recommendation(s) for sanctions	30
	(e) PSRO has undertaken and reported special investigations of questionable activities for other parties	20
	(f) PSRO has removed at least one hospital from delegated status/no hospitals are delegated for concurrent review	30
		210

II. Performance of Review Operations - Compliance and Process (850 pts.) (continued)

Item No.	Topic Covered	Points Assigned (max.)
IIC	Medical Care Evaluation/Quality Review Studies (140 pts.)	
IIC1	QA plan emphasizes problems important to patient care outcomes and contains methods for prioritizing problems	20
IIC2	Documented criteria, data analysis, and peer review	15
IIC3	Follow-up studies have demonstrated improvement	25
IIC4	Number of studies conducted meets requirements	15
IIC5	Follow-ups conducted within one year for at least 50% of studies that showed initial deficiencies	15
IIC6	Delegated hospitals' studies and nondelegated Quality Review Program evaluated at least annually	20
IIC7	90% of areawide/multihospital studies show improvement in area hospitals	15
IIC8	PSRO relates study results to needs of individual practitioners, including education	15
		140
IID	Data System (65 pts.)	
IID1	All 1980 PHDDS data submitted to HSQB	20
IID2	Data confidentiality meets Federal policies	10
IID3	PSRO has systematic monitoring system for assuring data quality and accuracy and taking corrective action	15
IID4	Data system includes regular routine reports plus ability to follow-up inquiries interactively	20
		65
IIE	Profiles (200 pts.)	
IIE1	Active data analysis committee plus trained staff to act on data issues	10
IIE2	Routine reports systematically compare institutions, practitioners, and diagnostic groups; are case-mix adjusted; prioritize problems by potential for reducing inappropriate care	30
IIE3	Profiles used at least quarterly to identify problems	30
IIE4	PSRO collects, at least twice a year, additional hospital abstract data elements	10
IIE5	Profiles used to monitor progress on objectives	25
IIE6	PSRO presents performance data to hospitals at least twice a year/works with hospitals to resolve problems	30
IIE7	Physician profiles generated and made available at least three times a year	15
IIE8	Physician profiles used for focusing in	25
IIE9	Profiles distributed annually to Board and others	10
IIE10	Profiles used regularly to identify quality problems	15
		200

III. Performance of Review - Impact/Potential Impact (1200 pts.)*

Item No.	Topic Covered	Points Assigned (max.)
IIIA	Objectives (200 pts.)	
	Measures extent to which PSRO has been able to set objectives which meet established criteria	
	- In 1979 or last grant period	70
	- In 1980 or current grant period	130
IIIB	Impact on Utilization (650 pts. plus 30 bonus pts.)	
IIIB1	Objective-specific utilization. - Measures the reduction in days of care, during 1979 and 1980, associated with specific PSRO objectives.	375
	BONUS: There has been reduced utilization of specific ancillary services related to a predetermined (approved) objective. Must be demonstrably due, at least in part, to PSRO activities.	
	- In 1979	(15)
	- In 1980	(15)
IIIB2	National Medicare days of care. - Measures the reduction in days of care per 1000 aged Medicare enrollees, in relation to changes in other areas. Based on 1979 data.	275
IIIC	Impact on Quality (350 pts. plus 50 bonus pts.)	
	Measures the extent to which PSRO achieved demonstrated quality impact in 1979 and 1980 (or past two grant periods).	350
	BONUS: Impact on quality was related to predetermined (approved) objectives.	(50)

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* Plus a possible 80 bonus points. Bonus points may be used to improve a PSRO's overall ranking but not to achieve a minimum acceptable score.

IV. Other Bonus Points (425 pts.)

Item No.	Topic Covered	Points Assigned (max.)
IVA	Additional Review Activities (325 pts.)	
IVA1	PSRO is performing long term care review and significant impact has been documented*	75
IVA2	Same with respect to review of ambulatory services	50
IVA3	" " " " " " ancillary "	50
IVA4	" " " " " " physician "	50
IVA5	" " " " " " home health "	50
IVA6	PSRO is performing private review or private review is imminent within next quarter	50
		325
	* NOTE: Significant impact indicates that: (a) 10 to 25 percent of physicians or patients were affected, OR (b) results were related to predetermined objectives or activities, OR (c) results improved patient care management or care outcome for a selected category of patients.	
IVB	Special Contributions to Art of PSRO Review (100 pts.)	
	PSRO conducted "special studies or review activities which resulted in advances in state of art of quality assurance or contributed new knowledge to clinical science."	100
	EXAMPLES: Studies to promote outpatient (as opposed to inpatient) surgery or to change physician modalities of care through behavior modification, continuing medical education, etc.	

FOCUSED REVIEW QUESTIONNAIRE

The final set of analyses in the body of this report made use of a series of variables formed from the Focused Review Questionnaire data base. Each variable defined in the study is identified below by the variable (or variables) in the data base from which it was derived.

1. The variable "Longevity of Focusing" is derived from:

FOCRVWDT	Date PSRO first implemented focused or alternative review (month, year)

2. The dummy variable "Focused Review" is based on:

FOCRVW	1, if PSRO or its hospitals did any focusing (either in or out) 0, otherwise
ALTRVW	1, if PSRO or its hospitals (a) selected cases for review or exemption based on a random ("non-focused") method, e.g., random days of the week, random patient numbers, etc. OR (b) conducted retrospective prepayment review 0, otherwise

3. The variable "Data Used" is obtained by summing the following variables. Each of these variables denotes that the data source indicated was used, in the second quarter of 1980, to make decisions concerning the structure or operation of the PSRO's review system.

Variable Name	Data Source Used
WHSQBU	HSQB PHDDS reports
WQRSU	MCE (Quality Review Study) data
WPVTU	Reports from private data systems (CPHA, HUP, etc.)
WMDPARU	MEDPAR Reports (HCFA Medicare data tabulations)
WMMISU	MMIS (State Medicaid data)
WFYINTU	Fiscal intermediary reports

4. The variable "PHDDS" is based on:

WPHDDSU	Variable which indicates that PHDDS data profiles were used (by the PSRO) in making decisions concerning its review system

5. The variable "Currency of Data" is based on:

CURDATA	The timeliness of the PHDDS data available for analysis in the second quarter of 1980 (i.e., 0-3 months, 4-6 months, etc.)

6. The variables "In/Out Diff" and "In/Out Sum" represent the difference and the sum, respectively, of the percent of cases focused out as opposed to the percent focused in. The percent of cases focused out is obtained by summing:

FOARCSR	Percent of patients focused out (in second quarter of 1980) for both admission and continued stay review
FOARONLY	Percent focused out for admission review only
FOCSONLY	Percent focused out for continued stay review only

The percent of cases focused in is obtained by summing:

FIARCSR	Percent of patients focused in (in second quarter of 1980) for both admission and continued stay review
FIARONLY	Percent focused in for admission review only
FICSONLY	Percent focused in for continued stay review only

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